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Space requirement of finishing pigs fed to heavier weight

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Abstract

Two trials, using a total of 240, crossbred, finishing pigs were conducted to evaluate 7, 9, and 11 ft^2 space allowance per pig from approximately 115 lb to a market weight of 250 lb. Pigs were removed individually each week as they reached the desired weight. Pigs reared in pens with 7 ft^2 had a reduced average daily feed intake and a significantly reduced average daily gain compared to those with 9 and 11 ft^2. Feed/gain was the same for all treatments; however, the pigs with 7 ft^2 required 4 days longer to reach 250 lb. Performance data suggests that 7 ft^2 is inadequate space allowance for pigs carried to heavier weights. No significant differences were observed in average daily gain, feed intake, or feed efficiency for pigs with 9 or 11 ft^2 allowance, suggesting that 9 ft^2 per pig is adequate space for this management system of removing pigs weekly as they reached the desired market weight.; Swine Day, Manhattan, KS, November 17, 1988

Keywords

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SPACE REQUIREMENT OF FINISHING PIGS FED TO HEAVIER WEIGHT

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Summary

Two trials, using a total of 240,crossbred,finishing pigs were conducted to evaluate 7, 9, and 11 ft^2 space allowance per pig from approximately 115 lb to a market weight of 250 lb. Pigs were removed individually each week as they reached the desired weight. Pigs reared in pens with 7 ft^2 had a reduced average daily feed intake and a significantly reduced average daily gain compared to those with 9 and 11 ft^2. Feed/gain was the same for all treatments; however, the pigs with 7 ft^2 required 4 days longer to reach 250 lb. Performance data suggests that 7 ft^2 is inadequate space allowance for pigs carried to heavier weights. No significant differences were observed in average daily gain, feed intake, or feed efficiency for pigs with 9 or 11 ft^2 allowance, suggesting that 9 ft^2 per pig is adequate space for this management system of removing pigs weekly as they reached the desired market weight.

Introduction

Cheaper feed prices in 1986 and 1987 encouraged swine producers to feed finishing hogs to heavier weights before marketing. Many producers fed hogs to 250 lb and above, instead of marketing at an average of 220-230 lb. The question of space allowance per pig during the finishing phase developed because of the increased body mass that occurs with increasing weight. The recommended space allowance for confinement reared pigs with partial slatted floors is 8 ft^2 per pig for finishing pigs from 150 lb to a market weight of approximately 225 lb. Many producers tend to crowd pigs in confinement systems because of lack of facilities or simply too many pigs. Several producers had indicated they stock pens in the finishing phase at 6 to 7 ft^2 per pig.

This study was conducted to evaluate 7, 9, and 11 ft^2 per finishing pig, with pigs fed to a heavier market weight and then removed individually as they reached 246 lb plus when weighed weekly. Additional experiments are being conducted to evaluate space requirements of pigs carried to a heavier weight, but leaving all pigs in the pen until an average of 250 lb for the group is reached.

Procedures

Two hundred and forty, crossbred, finishing pigs were used in two growth trials. Pigs were allotted to one of three treatments on the basis of weight, litter, and sex. Space allowances evaluated were 7, 9, and 11 ft^2 per pig. Pigs were housed in a modified open front building with 6 ft wide pens adjusted to square footage allowance by shortening the length of the pen. Each pen had 8 ft of concrete slats with various percentage of solid concrete. Each pen housed eight pigs and was equipped with a two-hole, self-feeder and a nipple-waterer. Each pen was fed ad libitum a sorghum grain soybean meal fortified diet that had a calculated analysis of 15% crude protein, .75% calcium, and .65% phosphorus.

Pigs were weighed at 28 and 56 days, and then weekly to permit removing pigs from the trial as they reached a weight of over 245 lb. Pigs which weighed 245 lb or less were left on trial until the desired weight was reached.

Trial 1 utilized 120 pigs averaging 110 lb, with eight pigs per pen and five pens per treatment (7, 9, and 11 ft^2/pig). In Trial 2, the 120 pigs averaged 117 lb at the start of the trials. All pigs were fed the same meal diet in both trials.

Results and Discussion

The effects of space allowance on finishing pigs fed to heavier weight (250 lb) in trial 1 are shown in Table 1. The average final weight for each treatment was the same. However, those pigs fed in pens allowing 7 ft^2 of space per pig required 4 to 7 more days to reach 250 lb than those with 9 or 11 ft^2. In addition, pigs with 7 ft^2 grew slower and ate less feed than the pigs with increased space allowance. A quadratic effect was observed for average daily gain and average daily feed intake, indicating that 9 ft^2 per pig resulted in the maximum performance.

Table 2 presents the performance of the pigs given 7, 9, or 11 ft^2 in trial 2 and fed to 250 lb at which time they were removed individually. Similar results to those observed in trial 1 were noted. Pigs allowed 7 ft^2 of space per pig required approximately 4 more days feeding time to achieve the 250 lb. Average daily feed intake was reduced again for this group of pigs, resulting in a significantly reduced average daily gain. Feed efficiency was not significantly affected by increasing space allowance per pig.

In Table 3, the data from trials 1 and 2 are summarized. A linear and quadratic effect upon average daily gain was observed, indicating that 7 ft^2 is not adequate for maximizing performance of finishing pigs fed to 250 lb. The reduced rate of gain increased significantly the days on feed to achieve the desired weight. Daily feed intake was reduced for the more confined pigs; however, the feed/gain ratios of the pigs reared with 7, 9 or 11 ft^2 were similar.

These two trials indicate that 7 ft^2 per pig is not adequate for finishing pigs carried to a market weight of 250 lb, even though the pigs were removed weekly as they achieved the desired weight. These data would suggest that 9 ft^2 is the minimum with the management system used.

Table 1. Effect of Space Allowance on Performance of Finishing Pigs Fed to Heavier Weight (Trial 1)

Item	Space Allowance, ft^2/pig			CV, %
	7	9	11	
No. pigs[a]	40	40	40	
Avg final weight, lb	249.7	251.9	249.2	1.8
Avg no. days on feed[bc]	94.2	86.7	89.8	4.3
Avg daily gain, lb[d]	1.64	1.76	1.71	4.1
Avg daily feed intake, lb[e]	5.83	6.09	5.91	3.8
Feed/gain	3.56	3.47	3.47	2.8

[a]Eight pigs/pen with 5 pens/treatment, average initial weight 110 lb.
[b]Linear (P<.11).
[c]Quadratic (P<.05).
[d]Quadratic (P<.06).
[e]Quadratic (P<.12).

Table 2. Effect of Space Allowance on Performance of Finishing Pigs Fed to Heavier Weight (Trial 2)

Item	Space Allowance, ft^2/pig 7	9	11	CV, %
No. pigs[a]	40	40	40	
Avg final weight, lb	248.0	250.9	250.0	0.8
Avg no. days on feed[b]	77.1	73.9	73.2	3.1
Avg daily gain, lb[b]	1.69	1.81	1.81	4.1
Avg daily feed intake, lb[c]	6.53	6.95	6.99	14.4
Feed/gain	3.87	3.84	3.86	3.8

[a]Eight pigs/pen with 5 pens/treatment, average initial weight 117 lb.
[b]Linear ($P < .05$).
[c]Linear ($P < .12$).

Table 3. Summary of Two Trials Evaluating Space Allowance for Pigs Fed to Heavier Weight[a]

Item	Space Allowance, ft^2/pig 7	9	11	CV, %
Avg daily gain, lb[bc]	1.66	1.78	1.76	4.3
Avg daily feed intake, lb[d]	6.18	6.52	6.45	10.7
Feed/gain	3.72	3.66	3.66	3.3
Avg days on feed[bc]	86	80	82	5.0

[a]Each mean is an average of 10 pens per treatment with 8 pigs per pen, average final weight of 250 lb.
[b]Linear ($P<.05$).
[c]Quadratic ($P<.05$).
[d]Linear ($P<.10$).